

I claim:

1. A light channelling panel produced by:

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(a), cutting a parallel array of cuts through a first sheet of transparent plastic with a cutting machine, the cuts being made with specified spacings between the parallel cuts and at a specified angle from the normal to said first sheet and with borders around the periphery of the sheet and thin internal columns perpendicular to the cuts left uncut in the sheet to support the cut regions in said first sheet;

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(b), cutting a parallel array of cuts through a second sheet of transparent plastic with a cutting machine, the cuts through said second sheet being made at the same specified spacings between the parallel cuts as for the first sheet and at a specified angle from the normal to said second sheet and with borders around the periphery of said second sheet and thin internal columns perpendicular to the cuts left uncut in the sheet to support the cut regions in said second sheet;

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(c), transposing, (that is, rotating through 180° or flipping about an axis perpendicular to the line of the cuts), said second sheet and fixing the face of said transposed second sheet in contact with the face of said first sheet such that the edges

of the cuts in said transposed second sheet are collinear with the edges of the cuts in said first sheet so as to form a light channelling panel containing an array of light channels that channel light by refraction at the input face, by total internal reflection at the cuts and by refraction at the output face, from the first (input) face of said light channelling panel, through to the second (output) face of said light channelling panel.

2. A light channelling panel produced by:

(a), cutting a parallel array of cuts partly through a first sheet of transparent plastic with a cutting machine, the cuts being made with specified spacings between the parallel cuts and at a specified angle from the normal to said first sheet;

(b), cutting a parallel array of cuts partly through a second sheet of transparent plastic with a cutting machine, the cuts through said second sheet being made at the same specified spacings between the parallel cuts as for the first sheet and at the same, or a different angle from the normal to said second sheet;

(c), transposing, (that is, rotating through 180° or flipping about an axis perpendicular to the line of the cuts), said

second sheet and fixing the face of said transposed second sheet in contact with the face of said first sheet such that the edges of the cuts in said transposed second sheet are collinear with the edges of the cuts in said first sheet so as to form a light channelling panel containing an array of light channels that channel light by refraction at the input face, by total internal reflection at the cuts and by refraction at the output face, from the first (input) face of said light channelling panel, through to the second (output) face of said light channelling panel.

3. A light channelling panel produced by:

(a); cutting a parallel array of cuts through the first face of a sheet of transparent plastic with a cutting machine, the cuts being made at specified spacings between the parallel cuts and at a specified angle from the normal to said sheet, said cuts extending partly through said sheet;

(b), transposing, (that is, rotating through 180° or flipping about an axis perpendicular to the line of the cuts), said sheet of transparent plastic and, by use of the cutting machine, cutting a second parallel array of cuts through the second face of said sheet at the same specified spacings as the cuts made through said first face and at the same, or a different angle,

from the normal to said sheet, said cuts through said second face extending partly through said sheet to just meet the internal or bottom edges of the cuts made through said first face, with borders around the periphery of the sheet and thin internal columns perpendicular to the laser cuts left uncut to support the cut regions of said sheet, the cuts through said first face and the cuts through said second face meeting within said panel so as to form a light channelling panel containing an array of light channels that channel light, by refraction at the input face, by total internal reflection at the cuts and by refraction at the output face, from the first (input) face of said light channelling panel, through to the second (output) face of said light channelling panel.

4. A light channelling panel as in claim 1 or in claim 2 or in claim 3 in which the cuts are made with a laser cutting machine in sheets of transparent acrylic plastic.

5. A light channelling panel as in claim 1 or in claim 2 or in claim 3 in which the cuts are made with a water cutting machine in sheets of transparent plastic.

6. A light channelling panel as in claim 1, 2 or 3 fixed in vertical orientation in a window opening to a building to channel all, or substantially all, of the sunlight incident on the first face of the panel through to the second face of the

panel and upward, into the building, so as to illuminate the building with sunlight reflected diffusely from the ceiling onto work surfaces in the building.

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